

# Work Order ID 107721

**\*107721\***

Page 1

Monday, September 30, 2013 9:55:07 AM

Item ID: D4287-3 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Uhmw U-Channel  
 Start Date: 9/30/2013 Start Qty: 25.00 **\*25\*** Cust Item ID:  
 Required Date: 10/4/2013 Req'd Qty: 25.00 **\*25\*** Customer:  
 Reference:

Approvals: Process Plan: CL Date: 13/09/30 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr             |                      |         |        |              |               |               |                  |                |
| D4287                          | A                        |                      |         |        |              |               |               |                  |                |

100 0.00

**\*100\***

Purchasing

Purchasing

Memo

Issue P/O: 21524  
 Material: UHMW (white)  
 Supplier P#: McMaster-Carr 8672K31  
 Material release note required

0.00

CL 13/09/30 (25)

110

Receive & Inspect for Damage & Mat'l Certs

0.00

**\*110\***

Packaging

Packaging

Memo

0.00

13/10/11 (20)

120

QC6- Inspect dimensions to drawing

0.00

**\*120\***

QC

Quality Control

Memo

0.00

25 13-10-01 09 89

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|   |             |             |   |   |                          |   |                        |                     |   |  |  |
|---|-------------|-------------|---|---|--------------------------|---|------------------------|---------------------|---|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____  |             |             |   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> |                          | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                        |                     |   |  |  |
| <b>Root Cause</b>   | <b>Date</b> | <b>Step</b> | <b>Qty</b>  | <b>Description of work order update or Non-conformance</b>  | <b>Initial Chief Eng</b> | <b>Action Description</b>   | <b>Sign &amp; Date</b> | <b>Verification</b> | <b>QC Inspector</b>   |  |  |
| Doc/Data <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| Equip/Tooling <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |
| Operator <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| Material <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| Setup <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |
| Other <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |
| Process <input type="checkbox"/>  |             |             |   |   |                          |   |                        |                     |   |  |  |
| Supplier <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| Training <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| Unapproved <input type="checkbox"/>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| <b>FAULT CATEGORY</b>   |             |             |   |   |                          |   |                        |                     |   |  |  |
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube |             |             | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio |   |                          | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions   |                        |                     | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge<br><br><input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><br><input type="checkbox"/> Other |  |  |

Monday, September 30, 2013 9:55:07 AM

**Item ID:** D4287-3

**Accept**

**\*N900040100\***

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

**Item Name:** Uhmw U-Channel

**Start Date:** 9/30/2013      **Start Qty:** 25.00

**\*25\***

**Cust Item ID:**

**Required Date:** 10/4/2013      **Req'd Qty:** 25.00

\*25\*

**Customer:**

**Reference:**

Run Start \*NR1\*

**Approvals:** \_\_\_\_\_ **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Stop **\*NR2\***

OC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

### Operation Description

### Set Up/ Run Hours

**Tool ID**

**Tool #****Plan  
Code**

**Accept  
Qty**

Reject  
QtyReject  
Number

**Insp:**  
**Stamp**

130

Identify as per dwg & Stock Location: ST 209A 0.00

0.00

**\*130\***

0.00

### Packaging

## Memo

## Packaging

**DAS**  
**26**  
**9-89**

13-10-7

140

QC21- Final Inspection - Work Order Release

0.00

**\*140\***

0.00

QC

## Memo

## Quality Control

~~PS~~ B-10-9  
MF  
13-10-07

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|  |   |   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
|--|---|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/>   | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> |  |
| Skid-tube <input type="checkbox"/>                           | Crosstube <input type="checkbox"/>  | Water Jet <input type="checkbox"/>  | Engineering <input type="checkbox"/> |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Machining <input type="checkbox"/>                           | Small Fab <input type="checkbox"/>  | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>     |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Thermoforming <input type="checkbox"/>                       | Finishing <input type="checkbox"/>  | Rec/Store/Packaging <input type="checkbox"/>  | Other <input type="checkbox"/>       |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Large Fab <input type="checkbox"/>                           | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |

| Root Cause                             | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|--|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Doc/Data <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Equip/Tooling <input type="checkbox"/> |      |      |     |   |                   |                    |             |              |              |
| Operator <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Material <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Setup <input type="checkbox"/>         |      |      |     |   |                   |                    |             |              |              |
| Other <input type="checkbox"/>         |      |      |     |   |                   |                    |             |              |              |
| Process <input type="checkbox"/>       |      |      |     |   |                   |                    |             |              |              |
| Supplier <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Training <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Unapproved <input type="checkbox"/>    |      |      |     |   |                   |                    |             |              |              |

### FAULT CATEGORY

|   |   |   |
|---|---|---|
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions |
|---|---|---|

|  |   |  |
|--|---|--|
| <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |  |
|--|---|--|

# Picklist Print

Monday, September 30, 2013 9:55:07 AM

Page 1

Work Order ID: 107721

Parent Item: D4287-3

Parent Item Name: Uhmw U-Channel

Start Date: 9/30/2013

Required Date: 10/4/2013

Start Qty: 25.00

Required Qty: 25.00

Comments: IPP Rev:A 10.11.15 new issue DD Verf:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| 8672K31<br>UHMW U-Channel       |                        | Purchased     | No          |                     |                  | 110             | f                  | 20.0000        | 1           | 25           |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  | <u>Loc Code</u>    |                |             |              |               |                |        |
|                                 |                        |               |             | ST                  |                  | 20              |                    |                |             |              |               |                |        |
|                                 |                        |               |             | 107507              |                  | 20              |                    |                |             |              |               |                |        |

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

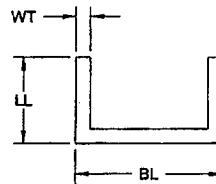
|  |   |   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
|--|---|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/>   | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> |  |
| Skid-tube <input type="checkbox"/>                           | Crosstube <input type="checkbox"/>  | Water Jet <input type="checkbox"/>  | Engineering <input type="checkbox"/> |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Machining <input type="checkbox"/>                           | Small Fab <input type="checkbox"/>  | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>     |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Thermoforming <input type="checkbox"/>                       | Finishing <input type="checkbox"/>  | Rec/Store/Packaging <input type="checkbox"/>  | Other <input type="checkbox"/>       |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Large Fab <input type="checkbox"/>                           | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |

| Root Cause                             | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|--|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Doc/Data <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Equip/Tooling <input type="checkbox"/> |      |      |     |   |                   |                    |             |              |              |
| Operator <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Material <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Setup <input type="checkbox"/>         |      |      |     |   |                   |                    |             |              |              |
| Other <input type="checkbox"/>         |      |      |     |   |                   |                    |             |              |              |
| Process <input type="checkbox"/>       |      |      |     |   |                   |                    |             |              |              |
| Supplier <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Training <input type="checkbox"/>      |      |      |     |   |                   |                    |             |              |              |
| Unapproved <input type="checkbox"/>    |      |      |     |   |                   |                    |             |              |              |

**FAULT CATEGORY**

|   |   |   |  |   |
|---|---|---|--|---|
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |
|---|---|---|--|---|

# SPECIFICATION CONTROL DRAWING



CX13/09/30  
W10: 107721

## D4287-X UHMW U-CHANNEL

| DART PART NUMBER | POSSIBLE SUPPLIER | SUPPLIER PART NUMBER | MATERIAL     | PURCHASED LENGTH | BASE LENGTH (BL) | LEG LENGTH (LL) | WALL THICKNESS (WT) | WEIGHT (lbs) |
|------------------|-------------------|----------------------|--------------|------------------|------------------|-----------------|---------------------|--------------|
| D4287-1          | McMASTER-CARR     | 9928K53              | UHMW (WHITE) | 96.0             | 1.05             | 0.75            | 0.250               | 2.11         |
| D4287-3          | McMASTER-CARR     | 8672K31              | UHMW (WHITE) | 96.0             | 1.25             | 0.75            | 0.125               | 1.29         |

RELEASED  
2010-11-03  
JWP

### NOTES:

- 1) MATERIAL: PURCHASE PER TABLE  
OR  
UHMW BLACK TIVAR 1000 VIRGIN MATERIAL  
REF. DART SPEC. MUHMW
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: NONE
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: PER TABLE

| A          | NEW ISSUE   | MB | 10.10.26 |
|------------|-------------|----|----------|
| REV.       | DESCRIPTION | BY | DATE     |
| DESIGN     |             |    |          |
| DRAWN      |             |    |          |
| CHECKED    |             |    |          |
| MFG. APPR. |             |    |          |
| APPROVED   |             |    |          |
| DE APPR.   |             |    |          |
| DATE       | 10.10.26    |    |          |

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA  
DRAWING NO. DSC-D4287  
REV. A  
SHEET 1 OF 1  
TITLE UHMW U-CHANNEL  
SCALE NTS

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NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

|  |   |   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
|--|---|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Work Order Update <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/>   | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> |  |
| Skid-tube <input type="checkbox"/>                           | Crosstube <input type="checkbox"/>  | Water Jet <input type="checkbox"/>  | Engineering <input type="checkbox"/> |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Machining <input type="checkbox"/>                           | Small Fab <input type="checkbox"/>  | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>     |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Thermoforming <input type="checkbox"/>                       | Finishing <input type="checkbox"/>  | Rec/Store/Packaging <input type="checkbox"/>  | Other <input type="checkbox"/>       |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |
| Large Fab <input type="checkbox"/>                           | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>   |                                      |                                    |                                    |                                      |                                    |                                    |  |                                  |  |                                    |  |                                |                                    |                                    |                                   |  |

| Root Cause    | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Doc/Data      |      |      |     |   |                   |                    |             |              |              |
| Equip/Tooling |      |      |     |   |                   |                    |             |              |              |
| Operator      |      |      |     |   |                   |                    |             |              |              |
| Material      |      |      |     |   |                   |                    |             |              |              |
| Setup         |      |      |     |   |                   |                    |             |              |              |
| Other         |      |      |     |   |                   |                    |             |              |              |
| Process       |      |      |     |   |                   |                    |             |              |              |
| Supplier      |      |      |     |   |                   |                    |             |              |              |
| Training      |      |      |     |   |                   |                    |             |              |              |
| Unapproved    |      |      |     |   |                   |                    |             |              |              |

**FAULT CATEGORY**

|   |   |   |
|---|---|---|
| <b>Landing Gear</b><br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric to O/S<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crushed/Crimped<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Inspection Strip in Tube<br><input type="checkbox"/> Ripples in Bend<br><input type="checkbox"/> Torque Waves in Extrusion<br><input type="checkbox"/> Turning Sequence<br><input type="checkbox"/> Wave/Twist in Tube | <b>General</b><br><input type="checkbox"/> Bend<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damaged<br><input type="checkbox"/> Burrs<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Drill Holes<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Folio | <input type="checkbox"/> Grain<br><input type="checkbox"/> Hardware<br><input type="checkbox"/> Inspection Incomplete<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Maintenance<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Offset<br><input type="checkbox"/> Out of Calibration<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Outside Dimensions |
|---|---|---|

|  |   |
|--|---|
| <input type="checkbox"/> Ovalized<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Other |
|--|---|





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO21524

Purchase Order Date 9/30/2013

PO Print Date 9/30/2013

Page Number 1 of 2

Order From :

VU-MCM001

Ship To : DART AEROSPACE LTD

MCMASTER-CARR SUPPLY CO,  
P.O. BOX 7690  
CHICAGO, IL 60680-7690  
US

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

*CL 309/13*

Contact Name

Vendor Phone 330 995 5500

Ship To Contact

Ship To Phone

Ship Via: FedEx PI collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 10

USD

FCA - (Free Carrier)

| Line Nbr  | Reference Vendor Part Number<br>Line Comments<br>Delivery Comments | Description/<br>Mfg ID | Req Date/<br>Taxable<br>Promise Date | CD | Req Qty/<br>Unit of<br>Measure | PO Unit Price | Extended Price |
|---|--|------------------------|--------------------------------------|----|--------------------------------|---------------|----------------|
| 1   | 91249A146  | Screw, Stainless Steel | 10/1/2013<br>Yes<br>10/1/2013        |    | 100.00<br>Each                 | \$0.04        | \$4.49         |
| AS PER DWG D4898 REV. A<br>B107709                            |  |                        |                                      |    |                                |               |                |
| Line Total:   |  |                        |                                      |    |                                |               | \$4.49         |
| 2   | 8672K31  | UHMW U-Channel         | 10/1/2013<br>Yes<br>10/1/2013        |    | 25.00<br>f                     | \$3.74        | \$93.50        |
| AS PER DWG D4287 REV. A<br>B107721<br><br>NOTE: 5 PCS OF 5 FT |  |                        |                                      |    |                                |               |                |
| Line Total:   |  |                        |                                      |    |                                |               | \$93.50        |

Note:

9/30/2013

200 Aurora Industrial Pkwy  
Aurora OH 44202-8087  
330-995-5500  
cle.sales@mcmaster.com

Dart Aerospace Ltd  
1270 Aberdeen St  
Hawkesbury ON K6A 1K7  
Canada  
Attention: Sylvain

McMaster-Carr Number  
8482517-01

09/30/2013

| Line | Description   | Ordered    | Shipped | LNS          | A                |
|------|---|------------|---------|--------------|------------------|
| 1    | 91249A146 Black-Oxide Finish Pan Head Phillips Machine Screw, 18-8 Stainless Steel, 6-32 Thread, 3/8" Length, Packs of 100<br>Your Part Number: B107709 | 1<br>Pack  | 1       | 2 - 709 - 02 | 04 - 79 A146 1PK |
|      | Unit Price: \$5.40  |            |         |              |                  |
|      | Extended Price: \$5.40  |            |         |              |                  |
| 2    | 8672K31 Wear-Resistant UHMW Polyethylene Trim, U-Shaped, 1" Opening, 1-1/4" Overall Width, 5' L<br>Your Part Number: B107721                            | 25<br>Feet | 25      | 6 - 38       |                  |
|      | Unit Price: \$3.26  |            |         |              |                  |
|      | Extended Price: \$81.50   |            |         |              |                  |
| 3    | 4719A248 Sanding Sleeve, Multipurpose, 60 Grit, 1-1/2" Inside Diameter, 1-1/2" Long, Packs of 25<br>Your Part Number: 71500-20                          | 1<br>Pack  | 1       | 1 - 87       |                  |
|      | Unit Price: \$12.11   |            |         |              |                  |
|      | Extended Price: \$12.11   |            |         |              |                  |

Dart Aerospace Ltd

EXP  
INV



102 lb  
5 line

Fr

FW1WBP2  
09/30/2013  
10:41/11:12  
102  
Cycle 31

1140866293630

